

SOLAR OBSERVATIONS

SOLAR AND SKY RADIATION MEASUREMENTS DURING
MAY, 1924

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For a description of instruments and exposures and an account of the method of obtaining and reducing the measurements, the reader is referred to the REVIEW for January and February, 1924, 53; 42 and 113.

From Table 1 it is seen that solar radiation intensities averaged slightly below normal values for May at all three stations.

Table 2 shows that the total solar and sky radiation received on a horizontal surface averaged below normal at Washington and Madison, and above normal at Lincoln.

Skylight polarization measurements made on 9 days at Washington give a mean of 49 per cent, with a maximum of 56 per cent on the 5th. Measurements obtained on 4 days at Madison give a mean of 58 per cent, with a maximum of 64 per cent on the 1st. These are slightly below the average May values at the respective stations.

TABLE 1.—Solar radiation intensities during May, 1924

[Gram-calories per minute per square centimeter of normal surface]

Washington, D. C.

Date		Sun's zenith distance										Local mean solar time	
		8a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°		Noon
		75th mer. time	Air mass										
			A. M.					P. M.					
			e	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0		5.0
May		mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	
1	-----	5.79		0.80	0.92	1.08						4.95	
2	-----	5.79			0.84	1.05	1.31					5.36	
3	-----	7.87	0.58	0.68	0.81							6.27	
5	-----	4.75		0.65	0.81	1.03	1.24					3.99	
6	-----	9.14		0.50	0.63	0.80	1.02					11.81	
15	-----	7.04		0.69	0.81	1.00	1.35					5.79	
17	-----	8.18		0.55	0.67	0.93	1.15					8.48	
19	-----	5.79		0.83	-----	0.87	1.10	0.73	0.53			4.57	
22	-----	5.66		-----	-----	-----	-----	1.06	0.87	0.72	0.58	4.75	
23	-----	8.18		-----	-----	0.85	-----	-----	-----	-----	-----	8.18	
26	-----	5.56	0.66	0.77	0.91	1.10	1.39	-----	-----	-----	-----	4.95	
31	-----	5.36		-----	-----	1.11	1.33	-----	-----	-----	-----	5.79	
Means	-----		(0.62)	0.68	0.80	0.98	1.24	(0.90)	(0.70)	(0.72)	(0.58)	-----	
Departures	-----		-0.01	-0.04	-0.03	-0.01	-0.05	-0.08	-0.06	+0.02	-0.03	-----	

TABLE 1.—Solar radiation intensities during May, 1924—Contd.

Madison, Wisconsin

Date	Sun's zenith distance											
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon	
	75th mer. time	Air mass										Local mean solar time
		A. M.					P. M.					
		e	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	
May 1	mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	
1	4.57				1.18	1.45	1.18				4.57	
2	5.16					1.40					3.81	
3	7.04					1.35					4.37	
12	6.50					1.26					7.04	
15	6.50				1.11	1.37					8.48	
20	4.75					1.39					4.75	
21	4.17		0.70			1.49					3.00	
26	5.36				1.14						5.79	
28	5.36				1.05	1.27					6.27	
Means			(0.70)		1.12	1.37	(1.18)					
Departures			-0.25		+0.00	-0.01	+0.14					

Lincoln, Nebr.

May 1	4.17		0.84	0.96	1.15	1.45					4.17
3	5.79		0.63	0.84	1.09						5.36
12	6.02			0.89	1.06						7.57
13	4.57			0.99	1.14						4.57
16	6.27			0.81	1.06						6.76
22	7.04		0.89	0.99	1.13						7.29
24	4.37			1.07	1.22						3.81
Means			0.79	0.94	1.12	(1.45)					
Departures			-0.03	-0.03	-0.03	+0.06					

¹ Extrapolated.

TABLE 2.—Solar and sky radiation received on a horizontal surface

Week beginning—	Average daily radiation					Average daily departure from normal		
	Washington	Madison	Lincoln	Chicago	New York	Washington	Madison	Lincoln
1924	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.
May 30	497	530	672	434	433	+46	+82	+198
June 7	339	277	403	243	190	-123	-186	-92
14	445	434	547	375	399	-24	-41	+38
21	471	460	532	302	423	-9	-17	+22
Excess or deficiency since first of year on May 27						+644	-4783	+2012